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CLAIMS

- Sub. a1*
- 5 1. A projection display system, comprising:
 - (a) a light source; *36*
 - (b) at least one polarizer; *38 40*
 - (c) at least one liquid crystal panel for generating an image;
 - (d) a projection source for projecting said *(48, 49)* image; and
 - 10 (e) a polarization compensator having a *52* plurality of regions each having a respective birefringence, said birefringence of at least one of said regions being different than said
 - 15 birefringence of another of said regions.
 2. The projection display of claim 1 wherein said regions are arranged in a rectangular matrix. *(Fig. 1)*
 - 20 3. The projection display of claim 1 wherein said regions are arranged concentrically.
 4. The projection display of claim 1 having more than two regions.
 - 25 5. The projection display of claim 1 wherein said polarization compensator is a transmissive liquid crystal device.
 - 30 6. The projection display of claim 5 wherein at least one of said regions has a director orientation that is different than another director orientation of another of said regions.
 - 35 7. The projection display of claim 1, further comprising an analyzer, and said polarization compensator is located between said polarizer and said analyzer.

8. The projection display of claim 1 wherein said polarization compensator is located at an aperture stop of said projection display.

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9. The projection display of claim 1 wherein said polarization compensator is built into said liquid crystal panel.

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10. The projection display of claim 1 wherein said polarization compensator is located at one of an entrance pupil and an exit pupil.

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11. The projection display of claim 1 wherein said polarization compensator is located adjacent to said liquid crystal panel.

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12. The projection display of claim 1 wherein each of said regions has electrically controlled birefringence.

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13. The projection display of claim 12, further comprising a feedback mechanism to adjust said birefringence of said regions.

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14. The projection display of claim 12 wherein said birefringence of said regions is adjustable over time.

15. The projection display of claim 1 wherein said birefringence of each of said regions is fixed.

16. The projection display of claim 1, further comprising a plurality of liquid crystal panels.

17. A method for displaying an image,
comprising:

- 5
- (a) providing polarized light;
- (b) generating an image from said polarized light;
- 10
- (c) correcting a plurality of polarization defects of said light by correcting at one location one polarization defect and correcting at another location another polarization defect where said correcting at said one location is different than said correcting at said another location, each of said locations being located in a plane that is substantially perpendicular to said light; and
- 15
- (c) projecting said image.

18. The method of claim 17 wherein said locations correspond to pixels.

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19. The method of claim 18 wherein said pixels are arranged in a rectangular matrix. ✓

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20. The method of claim 18 wherein said pixels are arranged concentrically.

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21. The method of claim 17 wherein said polarization defects are corrected at more than two locations.

22. The method of claim 17 wherein said polarization defects are corrected using a transmissive liquid crystal device.

23. The method of claim 22 wherein said transmissive liquid crystal device has at least one pixel having a director orientation that is different than another director orientation of another pixel.

24. The method of claim 17, further comprising transmitting said light through an analyzer, and said polarization defects are corrected before said light is transmitted through said analyzer.

25. The method of claim 17 wherein said polarization defects are corrected at an aperture stop.

26. The method of claim 17 wherein said polarization defects are corrected at a liquid crystal panel.

27. The method of claim 17 wherein said polarization defects are corrected at one of an entrance pupil and an exit pupil.

28. The method of claim 17 wherein said polarization defects are corrected at a location adjacent to a liquid crystal panel.

29. The method of claim 17 wherein said polarization defects are corrected by providing a polarization compensator having a plurality of pixels each having a respective birefringence, said birefringence of one of said pixels being is different than said birefringence of another of said pixels.

30. The method of claim 29, further comprising electronically controlling said birefringence of said pixels.

31. The method of claim 17 further comprising the step of feeding back an output signal representative of said light in order to correct said polarization defects.

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32. The method of claim 17 wherein said polarization defects are corrected at different times.

33. The method of claim 27 wherein said
10 birefringence of each of said pixels is fixed.

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